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USSR Report

ECONOMIC AFFAIRS

(FOUO 10/79)

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FEDORENKO DISCUSSES CURRENT, FUTURE ECONOMIC PROBLEMS

Moscow VOPROSY EKONOMIKI in Russian No 7, Jul 79 pp 3-12

[Article by Academician N. Fedorenko: "Long-Term and Current Problems of Economic Science"]

On 12 March 1978 the General Annual Meeting of the Economics Department of the USSR Academy of Sciences was held. Department academician secretary N. Fedorenko presented a report on tasks for the current year and the long term. His article, containing the basic theses of the report is published below.

There took part in the discussions on the report Academician A. Rumyantsev, Corresponding Member AS USSR M. Sladkovskiy, Corresponding Member AS USSR O. Bogomolov, Corresponding Member of the All-Union Academy of Agricultural Sciences imeni V.I. Lenin V. Mokhin. Corresponding Member AS USSR G. Sorokin appeared with the report "The First Five-Year Plan and Development of the Theory of Socialist Planning."

The general meeting adopted a decree which is published in this issue of the journal.

Recently the Soviet people commemorated the 50th anniversary of the First Five-Year Plan of the Development of the National Economy of the USSR. This jubilee was of special significance to scientists-economists. The USSR Planning Commission is an offspring of socialism and an expression of its radical advantages. Planned development of the national economy is one of the most important scientific and social gains of the 20th century and of the revolutionary practice of transformation of social life. Our plans have become the chief instrument of implementation of the economic policy of the Communist Party. Their realization is in the name of strengthening and development of the socialist system, consistent growth of productive forces, improvement of social relations and systematic upgrading of the material well-being and cultural level of the life of the people.

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While commemorating the jubilee of the first five-year plan and highly valuing that big contribution which was made by Soviet economic science to the development of methodology and methods of planning of social-economic development of our country, scientists-economists well realize that as yet not everything corresponds to the contemporary level of the economy in the practice of economic planning and management.

In summarizing the results of the past year, it should be pointed out that all the activities of the scientific institutions of the Economics Department of the USSR Academy of Sciences in 1978 were conducted on the basis of the measures adopted by the General Meeting of the Department in 1976 relating to the fulfillment of the decisions of the 25th CPSU Congress in the field of economic science. Studies were concentrated on the following basic directions: development of the economy of developed socialism into a communist planned management of the national economy, increasing the efficiency of socialist production, the world socialist system, developing countries, economic and political problems of contemporary capitalism, criticism of contemporary anticommunist theories.

Theoretical researches on the political economy of socialism have been and remain at the center of attention of scientists. They encompass the economic problems of developed socialism as the stage of direct development of socialism into communism and the general laws and features of building of developed socialism in different countries, possibilities and advantages of developed socialism and the scientific bases of CPSU economic strategy and the economic role of a socialist state and a number of other problems. The preparation of a first version of a major work on the political economy of socialism is on the verge of completion at the Economics Institute. The work on completion of this study has to be speeded up, since it is of big importance to the investigation of theoretical problems of development of the whole socialist economy. At the Central Economic-Mathematical Institute of the USSR Academy of Sciences a work is being prepared on the bases of optimal planning and management of the national economy and researches are continuing in the field of the theory of optimal functioning of the socialist economy. Important work is being done at institutes of the USSR Academy of Sciences on the economics of the present stage of development of the countries of the socialist community and their economic integration, economics and politics of the capitalist world and the developing countries.

In the field of organization of economic research and cadre training certain successes have been achieved in the concentration of forces on complex research studies and planning of research has been somewhat improved although multiplicity of subjects and duplication of themes have not been eliminated; responsibility for plan fulfillment has been increased. Ties have been strengthened between institutes of the USSR Academy of Sciences and academies of union republics, institutes of ministries, departments and higher educational institutions. Creative cooperation is developing between economists and representatives of other social, natural and technical sciences and so is coordination of their activities.

There is increased discussion on topical questions of theory on the pages of journals, at scientific councils of the Economics Department and at scientific councils of institutes.

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We are referring to substantiation of factors of a growth of labor productivity that is more rapid than in the 10th Five-Year Plan, especially in those regions of the country where a labor shortage is being felt, to the possibilities of shifting from capital-intensive to a capital-saving type of expanded reproduction, to a sharp reduction of fuel and metal outlays per unit of end product and to the elimination of still occurring losses of various resources in the national economy.

The scientific analysis of these problems calls for an even more active development of the theory of socialist expanded reproduction and a profound and concrete knowledge of the laws of development of socialism. It is necessary to intensify the development of the theoretical bases of a rapid reorganization of the country's production apparatus and of the structure of production under conditions of acceleration of scientific-technical progress and greater balancing of economic development.

It is also necessary that research on the national-economic aspects of intensification of production becomes the chief concrete direction in acceleration of scientific-technical progress. This requires expansion of research, primarily of problems of development of agroindustrial and fuel-and-power complexes of the country and improvement of investment processes. Our country is faced with important problems--effective solution of the food problem, ensuring of the further growth of energy resources, expansion of the investment possibilities of the economy, and overcoming of lag in the development of the infrastructure.

We should carry out comprehensive scientific research studies uniting theory, concrete economic analysis, economic-mathematical modeling, computer technology and obtain in this way practical, useful recommendations.

Second, the working out of the Complex Program has again shown the importance of increasing research in the field of problems of the socialist way of life. This applies first of all to substantiation of long-term social goals and the disclosure of what could be called the social model.

Studies of the socialist way of life require comprehensive analysis both from positions of unity of theory, methods of economic analysis, information and end results and on the basis of the interrelation of the main aspects of improving the people's well-being; change in the character and conditions of labor under the influence of the scientific-technical revolution, improvement of the stimuli of quality, skilled, conscientious labor. The following are of major theoretical and practical significance: the search for a rational combination of forms of wages (piece-rate, time-rate, lump-payment and others); study of the way of life in the city and in the country, substantiation of the possibilities of bringing them closer together while at the same time preserving reasonable differences between them (this also requires fundamental social-economic research of problems of settling); rationalization of consumption and establishment of standards for different social groups (in this connection, the necessity arises for studying such problems, for example, as increased use of motor vehicles and so on); analysis of income distribution, combining of different forms of realization of the law of distribution

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on the basis of labor with social factors of distribution; a retail-price policy (under present conditions, it requires especially careful substantiation) in interrelationship with problems of rationalization of consumption and the task of full coverage of solvent demand. Studies of problems of the socialist way of life must include disclosure of the laws of reproduction of the country's educational-skill potential, analysis of the problem of health protection of the population not only as a demographic factor but also as one of the main social goals of development of our society. Special attention has to be paid to ecological problems, uniting questions of rational use of nature, scientific-technical progress, working and living conditions. A comprehensive approach is also required here.

Third, problems of improving the system of management and planning of the entire economic mechanism are included in the chief directions of the future research of the Economics Department. L.I. Brezhnev repeatedly reminded us that the way to overcoming most unsolved problems and defects in the national economy is considered by the party to lie in raising the efficiency and quality of work. An obligation of scientists-economists is to propose such methods of planning and management to the national economy as would fully take into account the new conditions and new tasks. "Today there is no job that is more important than an economic, maximally rational use of all our possibilities and resources," L.I. Brezhnev has said. "This requires new approaches in the policy of capital investments and many spheres of technical policy, maneuvering of existing capacities and manpower resources, overcoming of bureaucratic and regionalistic tendencies. This also requires a certain reorganization in planning and methods of management and in the system of indicators and material incentives. And no matter how difficult this reorganization might be, it would be impossible to do without it."

Improvement of the economic mechanism is a condition, a tool for the solution of scientific-technical and social-economic problems. In this connection, it would be necessary, in our opinion, to continue working along the following directions: practical implementation in all sectors of the national economy of the principle of planning and assessment of operational activity according to end results, transition to program goal methods; actual conversion of five-year plans into a basic form of planning as part of the system of plans of economic and social development of the country, including long-range, five-year and annual plans; improvement of the organizational structure of management along the line of creation of organs of management by intersectorial programs, expansion of the rights and responsibilities of ministries, reduction of linkage in management, strengthening of industrial associations; introduction of complete self-support in production associations and in this connection reduction of the share of budget financing, expansion of credit and self-financing in capital construction and a number of other spheres of operational activity, introduction of the principle of pay-ability [platnost'] in regard to limited productive resources--manpower, water and land resources, mineral wealth, expansion of the rights and responsibilities of associations as basic self-support units of the socialist economy; carrying out of large-scale economic and organizational experiments for the purpose of developing

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new, more effective methods of management, planning and stimulation of scientific-technical progress; establishment in every sector of head scientific-production associations determining the direction of scientific-technical progress and creating and introducing advanced technology and experimental models into production. We know that any science successfully advances practice only when there has been achieved a fruitful relation between theory and experimentation. Their dislocation leads to a major lag in the achievements of science and sometimes even to their total loss. It is also important to ensure intensification of development and a wider-scale use of economic-mathematical methods and electronic computer equipment for the solution of problems of optimal planning, management and economic stimulation of production in all parts of the national economy.

It is also necessary to develop basic long-term directions of work on improvement of material-technical supply and interconnection of industry and trade, the combining of sectorial and territorial principles of management and on reorganization of the economic mechanism.

Collectives of hundreds of scientific-research institutes and workers of union departments, republic organs and republic academic institutions and VUZes took part in working on the Complex Program of Scientific-Technical Progress and its Social-economic Consequences. Scientists of the USSR Academy of Sciences and its institutes and other scientific institutions played an important role in preparation of the Complex Program, including in working out of problems of their own scientific-technical progress in close cooperation with specialists in the field of the natural and technical sciences. But their role is particularly great in the preparation of those parts of the program which are devoted to general problems of development of the country's economy and its social-economic aspects.

In connection with the development of the program there were investigated in particular such problems as the impact of scientific-technical progress on the rate and proportions of development of the national economy, improvement of socialist production relations, social structure and way of life, improvement of the people's well-being and culture, improvement of the economic mechanism (which has already been mentioned), regional problems of scientific-technical progress, cadre training, demographic questions, social problems of development of the agrarian sector; there were also studied those questions of international character that have a direct bearing on the perspectives of foreign-economic ties of our country in the interest of scientific-technical progress, and so on. In the work that was done, all participants strove to study in an interrelated manner technical, social and economic aspects.

On the whole, it should be emphasized that the organic combination of various sciences--economics, sociology, law and the numerous technical and natural sciences constitute a characteristic trait inherent in the Complex Program of Scientific-Technical Progress and its Social-Economic Consequences.

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At the present time, work is to be continued on the Complex Program. It is necessary to think how to organize this work better and determine ways of its fulfillment. Taking into consideration that at the present time our planning and operational organs are engaged in the preparation of the 11th Five-Year Plan, it is necessary to do everything possible to see to it that the scientific results obtained in the course of development of the Complex Program are reflected in it. A.N. Kosygin pointed out that a lot of work will have to be done this year in compilation of a plan for the 11th Five-Year Plan and the Basic Directions of Economic and Social Development of the USSR up to 1990. The USSR Council of Ministers, Gosplan SSSR, councils of ministers of the union republics and ministries face very responsible tasks. These organs must correctly assess and opportunely take into account new requirements, provide for corresponding changes in production, outline concrete measures for the planned attainment of the goals set by the party. "It is necessary," A.N. Kosygin emphasized, "to find and incorporate in the plan optimal solutions providing for a dynamic and proportional development of all the sectors of the national economy in accordance with the party's policy of an accelerated transition to intensive factors of economic growth." It is namely science that has to help state and planning organs to find optimal solutions providing for a dynamic and proportional development of our national economy. This task is evidently of important significance for economic scientific institutions.

The report of the Economics Department gives a broad picture of the activities of the scientific collectives comprising it and concrete work done by scientific institutions and scientists in the year under review.

We shall indicate several works that are of major importance. First of all there is the recently issued "Basic Methodic Principles of Optimization of Development and Distribution of Production" based on the use of economic-mathematical methods. In the preparation of this important methodic document, the collectives of a number of scientific institutes took part: the Institute of Economics and Organization of Industrial Production of the Siberian Department of the USSR Academy of Sciences, the Council for the Study of Productive Forces attached to Gosplan SSSR, the Central Economic-Mathematical Institute of the USSR Academy of Sciences. This work by a large collective of our country's economists is going to play an important role in improving long-term sectorial planning and will promote the securing of much experience that has already been accumulated in this field in our country. As we know, in 1977 there was also published a new methodology (general rules) of determining the effectiveness of the use of new equipment, inventions and rationalizing proposals in the national economy. Last year, the working out of sectorial instructions for determining the economic effectiveness of new equipment was undertaken in all sectors of industry and methods were concretized for determining effectiveness while taking into account the specific character of individual sectors. At the Central Economic-Mathematical Institute of the USSR Academy of Sciences, a consultative methodological center was set up for working out sectorial methods and instructions. At the present time more

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than 50 such documents have been worked out and approved. Thus at the present time the above-mentioned assessment is being based in most sectors on unified methodological and methodic principles.

In 1978, methodic recommendations were also worked out for determining an economic evaluation of the damage done by pollution of the environment and the economic effectiveness of measures for the protection of nature. The Main Administration of Geodesy and Cartography under the USSR Council of Ministers approved the plan of a single method of assessment of the economic effectiveness of using in the national economy space information on the natural resources of the earth as prepared by institutes of the USSR Academy of Sciences together with Priroda State Center.

Together with tasks of a strategic long-range character, practical life presents to economists many which require immediate operational intervention. This question was raised most acutely at the November (1978) Plenum of the CPSU Central Committee and deserves special study. While strategic solutions are usually connected with profound structural reorganizations in the national economy and with large capital outlays, scientific-technical development and the like, tactical solutions are as a rule of an organizational-economic character. This involves improvement of existing management structures, putting into operation of needed economic stimuli, plan indicators and other measures. They are aimed at searching for and involving in the national-economic turnover unused reserve resources, including those lying on the surface. At the same time, their development and realization does not require practically national-economic expenditures if you do not consider the relatively modest funds required for carrying out research and economic experiments.

The actual selection of such problems requires careful study of the state and tendencies of development of the economy, foreseeing of difficulties that may arise in this or that sector. In each case, it is important to outline with maximal clarity the limits of the problem and to break it up into its component parties and to determine its place in the set of general problems.

For example, basic work on improving capital construction has to be closely related to the long-range plan and the long-term perspective. But the possibility exists of the prompt solution of a number of problems. It is necessary to improve the mode of economic stimulation and assessment of the work of builders and planners; at the present time construction of objects is not becoming cheaper but increasing in cost. So far it has been impossible to find a cardinal solution for this problem, but the necessity for it is undoubtedly matured. In order to create adequate stimuli for the introduction of a system of turnover of construction products "with the key," that is, facilities ready for output of products or services, a number of modifications were made to the Belorussian experiment--in particular, differentiation of prices for completed construction products is being introduced depending on adherence to schedules for construction of facilities.

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In the area of cooperation of institutes of the USSR Academy of Sciences and academies of sciences of union republics with scientific institutions of the fraternal socialist countries, the working out of a number of important problems, particularly the preparation of collective works, has become more active. The work done by the Higher Certification Commission under the USSR Council of Ministers and by councils for defense of dissertations and awarding of degrees has made it possible to raise requirements in regard to the theoretical and practical value of dissertations.

An important role in all this work is played by the participation of scientists-economists of the Department in the preparation of the Complex Program of Scientific-Technical Progress and its Social-economic Consequences Over the Long Term and in the development of proposals for improving planning and management of the national economy.

The development of the Complex Program of Scientific-Technical Progress and its Social-Economic Consequences (leader--Vice President of the USSR Academy of Sciences Academician V. Kotel'nikov) was carried out along 25 directions; this was done by 25 specially created commissions of the USSR Academy of Sciences and the USSR State Committee for Science and Technology. These included 10 commissions for social-economic problems. The bureau of the Economics Department repeatedly discussed the materials prepared by these commissions, supervised all the social-economic aspects of the development of the Complex Program and also participated in the work of the scientific-technical commissions. In February 1979, a draft of the Complex Program was discussed and essentially approved at a joint meeting of the Presidium of the USSR Academy of Sciences. We may already speak of completion of an important stage of many years of work by scientists and specialists from various fields of learning contributing to the scientific substantiation of the long-range scientific and technical and social-economic policy of the party and the state.

From this important work a number of conclusions can be made which have a direct bearing on the prospects of the scientific researches of the Economics Department's institutes, both in the next two years and during 1981-1985. Three of the more important groups of problems should be singled out.

First, demonstration of ways of comprehensive intensification of socialized production on the basis of acceleration of scientific-technical progress and implementation of a corresponding social and economic policy. Here theoretical and applied research is closely intertwined, and it is particularly in this area that further strengthening of our ties to planning and operational organs is needed.

Our country has entered that stage of social and economic development where the achieved scale of production and at the same time growing limitations in the use of labor and material resources make it necessary to shift to a new, essentially intensive type of socialist expanded reproduction. Scientists-economists must validate theoretically and point out practical ways for such a transition.

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New indicators for evaluation of products in machine building should be employed: a product should be considered sold only after it has been delivered, installed and put into operation at full capacity while adhering to all qualitative and economic indicators prescribed by plans, estimates and orders. Up to this no final settlement should be made. Such a procedure would correspond to the party's requirement of constant orientation toward end results of economic activity. A number of studies and economic experiments will have to be carried out in order to find the best forms of implementing the indicated proposals.

It is necessary to emphasize that the tasks of developing machine building are now acquiring a special significance. We know that Soviet machine building has achieved major successes; at the same time, there are a number of unsolved problems in this field: significant reserve capacities exist for increasing effectiveness and improving organization. The duty of economists in addition to the development of the Complex Program of Development of Machine Building is also to propose other high-priority measures in this most important field.

Much has to be done in improving the economic mechanism within the framework of the agroindustrial complex. In a report at the July (1978) Plenum of the CPSU Central Committee, L.I. Brezhnev said that the deep-rooted changes in agriculture that have occurred in past years "objectively demand the further improvement of the economic mechanism. This applies to questions of planning, stimulation, strengthening of self-financing operation, improvement in interrelations of all sectors comprising the agroindustrial complex."

Scientists-economists are able to give most effective recommendations for all these directions. Has not the time arrived for establishing funds of economic stimulation in the form of a solid share of the net income of an operational unit obtained from the sale of products provided by the state plan and agreements on cooperation? It is clear that in this enterprises and associations with superior and average conditions of production should be imposed payments differentiated on the basis of the land cadastre. Economists have a scientific reserve making it possible to propose a number of immediate measures for the solution of the housing problem, the problem of satisfying solvent demand, the problem of labor resources, and so on.

On the basis of the described considerations, the Bureau of the Economics Department formed seven working commissions made up of scientists-economists, representatives of a number of institutes and entrusted to them the development of primary measures for the solution of important urgent problems of the country's social-economic development brought out in the decisions of the Plenums of the CPSU Central Committee and in the speeches of L.I. Brezhnev. The following problems were singled out: improvement of the structure of capital investments; improvement of capital construction; development of machine building; improvement of the economic mechanism within the framework of the agroindustrial complex; provision of solvent demand of the population; solution of the housing problem; the problem of labor resources.

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The commissions have already prepared scientific reports, which undoubtedly deserve attention. Answers have as yet not been found for all the raised questions, but there are some very useful and effective recommendations. It would appear that collectives of scientists-economists of republic academies of sciences should be actively drawn into the solution of urgent economic and organizational problems. With the necessary coordination on the part of the Economics Department, the efforts of the scientists-economists will be more effective in improving the system of planning and management of our economy.

An important role in this is played by the question of the scientific profile of republic and regional institutes and affiliates and of coordination of their scientific activity with other institutes of the Economics Department.

Certain directions of scientific research can be formulated in advance: theoretical problems of developed socialism; demographic process, problems of training and migration of manpower and its more effective use; rational use of nature; regional aspects of scientific-technical progress; effective use of producer goods and other material resources; formation and development of large territorial production complexes (the cotton complex of Central Asia, zones of the Baykal-Amur Main Line and so on); social development of individual regions. These problems should be central for republic and regional institutes, which will make it possible to organically keep in accord the fundamental character of the approach with the major practical social significance of the obtained results.

In the field of research on the world socialist system, there should be continued study of the laws of its development, working on the improvement of joint planning activity and expansion of socialist integration within the framework of the Council of Economic Mutual Aid, the 30th anniversary of which will take place this year. We think that a significant contribution by the Department's economists to this commemorative date would be completion of work on the basic study "The World Socialist Economy (Questions of Political Economy of Socialism)" and also the preparation of practical recommendations on expansion of specialization and cooperation in a number of sectors of industry and agriculture of the CEMA member-countries and increasing the number and improving the quality of publications propagandizing the achievements of the socialist countries in realizing the advantages of socialism.

As for the problem of the developing countries, research should be continued on questions relating to the improvement of their cooperation with socialist countries and also on the comprehensive analysis of social-economic and political problems of development of the countries of Asia, Africa and Latin America. It is necessary to prepare concrete recommendations on improving the effectiveness of the trade and economic relations of the USSR with a number of the young independent states.

When investigating the problems of contemporary capitalism, there is a need for continuing the study of crisis manifestations in the economy and politics of the capitalist world, analysis of the exacerbation of the class and social

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contradictions characteristic of it, perspectives of scientific-technical development and its social-economic consequences in capitalist countries, ways of expanding relaxation of international tension, improving and increasing the effectiveness of USSR foreign-economic relations with the big capitalist states and the solution of a number of global problems of mankind.

In the course of comprehensive study of the economy and politics of the large capitalist countries, it is necessary to generalize their experience in management of industry and construction and to investigate more deeply the factors of intensive development of their agriculture and industry. Recommendations should be prepared relating to problems of developing the export base of the USSR, on improving and increasing the effectiveness of the foreign-economic relations of our country and also on problems of energy, raw materials and protection of the surrounding environment and the World Ocean.

In connection with the task of increasing the effectiveness of propaganda proposed at the November (1978) Plenum of the CPSU Central Committee, scientists of the Economics Department will have to expand researches on criticism of antimarxist theories, give consideration to the concrete study of social-political and ideological processes in the United States and other developed capitalist countries (including questions of social-political awareness of the strata of the population of these countries) and increase the number of works containing a critical analysis of the internal and foreign policy of the Maoist leadership of the Chinese People's Republic.

The Economics Department is actively conducting scientific-organizational work. At meetings of the Department's Bureau proposals have been discussed on the fulfillment of the decisions of the July and November (1978) Plenums of the CPSU Central Committee, proposals were prepared for further improving the information software on scientific research, and a number of scientific reports were heard.

At sessions of the Bureau and the Section of Social Sciences reports were discussed on the scientific and scientific-organizational activity of the Institute of Economics of the USSR Academy of Sciences, the Institute of Social-Economic Problems of the USSR Academy of Sciences and the Economics Section of the Dagestan Affiliate of the USSR Academy of Sciences.

The problem of publication of economic literature was discussed. The Economics Department believes that the situation should not be tolerated that in a number of publishing houses the number of titles, average size and number of copies of scientific economic literature are being reduced and that the participation of institutions in the selection and preparation for publication of this literature is of a casual character. By a decision of the Bureau of the Department dated 5 December 1978, proposals on providing help to improve the quality of published economic literature were sent to the USSR State Committee for Publishing Houses, Printing Plants and the Book Trade.

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This year the Economics Department is to do an important work in compiling and coordinating the draft of the plan of scientific research in the field of the economy for the 11th Five-Year Plan (volume V of the consolidated plan of scientific research for the natural and social sciences). It is necessary to select the most important economic problems on which work should be done in 1981-1985. The main content of the plan should be connected to the fulfillment of the recommendations of the Complex Program of Scientific-Technical Progress and its Social-Economic Consequences Over the Long Term and with the preparation and publication of comprehensive basic works on the most important problems of the economy and economic science.

The Economics Department together with the Scientific Council for Problems of Scientific-Technical and Social-Economic Forecasting of the USSR Academy of Sciences and the State Committee for Science and Technology will head the work on carrying out of social-economic research and compilation of forecasts to the year 2000 and for the more remote perspective.

The Department's scientific councils can and must provide major help in the organization and coordination of planned research for 1981-1985. They will have to be the scientific coordinating centers in the planning of joint research and expansion of cooperation between the scientific institutions of the USSR Academy of Sciences and the union republics and sectorial institutes, ministries, departments and VUZ's.

At the same time the institutes of the Economics Department, economic institutions of the Siberian Department, scientific centers and affiliates of the USSR Academy of Sciences and the economic institutes of the academies of the academies of sciences of the union republics have to finish work on refining the plans of scientific-research work for the remaining two years of the present five-year plan. This will require the concentration of scientific manpower on basic and comprehensive research while eliminating multiple topics and superficiality of subject matter and duplication of themes.

The Economics Department of the USSR Academy of Sciences considers useful the practice of visiting sessions of the Department's Bureau for discussion problems of development and coordination of scientific research. Among a number of such measures in 1979 a joint session is planned of the Bureau of the Economics Department and economics sections of the Kola, Karelian and Komi affiliates of the USSR Academy of Sciences for the purpose of providing effective methodic assistance and raising the level of comprehensive economic research on problems of the European North. It is necessary to devote a great deal of attention to the development of proposals for improving stimulation of the labor of scientists, including scientists-economists.

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1979 for the country's scientists-economists is a year of strenuous activity. In order to achieve more coordination and higher scientific exactingness in work, all the members of the Economics Department should always participate in the solution of discussed scientific problems and scientific-organizational questions and in the development of effective scientific recommendations for raising the efficiency and quality of all economic activity in the country.

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DECREE OF THE ANNUAL MEETING OF USSR ACADEMY OF SCIENCES ECONOMICS DEPARTMENT
Moscow VOPROSY EKONOMIKI in Russian No 7, Jul 79 pp 13-15

[Article containing text: "Decree of the General Annual Meeting of the USSR Academy of Sciences Economics Department (of 12 March 1979)"]

[Text] The general annual meeting of the Economics Department of the USSR Academy of Sciences noted that, in accordance with the decisions of the 25th CPSU Congress the July and November (1978) Plenums of the CPSU Central Committee, positions and conclusions given in the speeches of Comrade L.I. Brezhnev and also measures of the Economics Department of the USSR Academy of Sciences on fulfillment of the decisions of the 25th CPSU Congress in the field of economic science in the current years of the five-year plan at the center of attention of scientists-economists; studies were conducted on the fundamental problems and laws of the economic functioning of developed socialism, criteria and ways of building the material-technical base of communism, increasing the efficiency of production, improving management of the national economy, problems of socialist economic integration and development of long-term economic relations of the USSR with the socialist countries, investigation of new developments in the economics and politics of capitalist and developing countries, problems of USSR foreign-economic relations and laws of development of the world revolutionary process.

The efforts of the collectives of scientists of economic subdivisions were directed at the further expansion and strengthening of ties with production and speeding up of the introduction of scientific achievements in national-economic practice.

At the same time, the meeting was of the opinion that large unused reserve capabilities for increasing the effectiveness of scientific research existed in the economic institutions of the USSR Academy of Sciences. These involve first of all raising the level of the work skills and the creative activities of scientists, improving planning, organization and coordination of scientific-research work, further strengthening ties of research with topical tasks of the building of communism.

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having heard and discussed the report of the Economics Department of the USSR Academy of Sciences, the General Annual Meeting of the Economics Department of the USSR

DECREES:

1. To approve the results of the scientific-research work of the economic institutions and the scientific-organizational activity of the Economics Department of the USSR Academy of Sciences for 1978.

Institutes and Scientific Councils of the Economics Department of the USSR Academy of Sciences, economic institutions of the Siberian Department of the USSR Academy of Sciences, Scientific Centers and Affiliates of the USSR Academy of Sciences and economics institutes of the academies of sciences of union republics are to ensure the unconditional fulfillment of plans of scientific research established for 1976-1980 for all economics institutions of the USSR Academy of Sciences. To raise the efficiency and quality of scientific-research work and to speed up introduction of scientific developments into the practice of the national economy.

2. To direct the attention of the institutes and the Bureau of the Economics Department of the USSR Academy of Sciences to the preparation of a thoroughly substantiated draft of a scientific-research plan for 1981-1985, which has to reflect the solution of principal fundamental problems of economic science, very important national-economic problems and also problems of the international relations and foreign policy of the Soviet Union ensuring acceleration of the rate of growth of the economy and the creation of conditions of successful fulfillment of the 11th Five-Year Plan of Economic and Social Development of the USSR.

3. Institutes and scientific institutions of the Department to continue intensive development of the most important fundamental problems for the period 1976-1990 according to the following complex programs:

"Economic Problems of Developed Socialism and Laws of its Development into Communism" (supervisor--Corresponding Member AS USSR Ye.I. Kapustin);

"Perfecting the Planning and Management of the National Economy" (supervisor --Academician N.P. Fedorenko);

"Regional Economics and Regional Social-Economic Development of the USSR for the Period to the Year 2000. Formation and Development of Large National-Economic and Territorial-Production Complexes (supervisor--Academician N.N. Nekrasov);

"Complex Program of Research on Problems of Demography" (supervisor--Corresponding Member AS USSR T.V. Ryabushkin);

"Laws of Development of the World Socialist Economy, Problems of Socialist Economic Integration and Development of Long-Term USSR Economic Relations with the Socialist Countries" (supervisor--Corresponding Member AS USSR O.T. Bogomolov);

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"Laws and Tendencies of Development of the Economy of Capitalist and Developing Countries and of the World Capitalist Economy, Problems of Foreign Economic Relations of the Soviet Union with These Countries" (supervisor--Academician N.N. Inozemtsev).

4. Authors' collectives to adopt measures for accelerating work on the fundamental theoretical works "The Economic Order of Socialism," "The World Socialist Economy (Problems of Political Economy)," "Basic Theory of International Relations" and "Fundamentals of the System of Optimal Planning and Management of the Socialist Economy." The Bureau of the Department to regularly examine at its sessions the status of preparations for publication of the indicated scientific works.

5. The Bureau of the Economics Department and institutes of the USSR Academy of Sciences to continue work on the "Complex Program of Scientific-Technical Progress and its Social-Economic Consequences for the Period to the Year 2000." At the same time the commissions created by the Department's Bureau to complete work this year on the preparation of recommendations for the solution of urgent national-economic problems, including recommendations for improving the economic mechanism.

6. In accordance with the materials of the July (1978) Plenum of the CPSU Central Committee institutes of the Department, economic subdivisions of Scientific Centers, Affiliates, the Siberian Department of the USSR Academy of Sciences and economics institutes of the academies of sciences of union republics to give more attention to research and substantiation of ways of further development of the country's agroindustrial complex and improvement of the relations of agriculture to other sectors of the national economy.

7. Institutes of the international type to do active research on problems of development of the world socialist system, generalizing the practical experience of CEMA member-countries in the solution of actual social-economic problems arising in the course of building a developed socialist society.

To adopt measures for further intensifying research on the special features of the general crisis of capitalism at the present stage and the laws of social-economic development and scientific-technical progress in the chief capitalist countries, basic tendencies in the world capitalist economy and international relations. To deepen research on the theoretical and political aspects of the transition from capitalism to socialism under present-day conditions of the revolutionary process and the prospects of development of the countries of Asia, Africa and Latin America.

8. Soviet economists to intensify criticism and demonstration of the scientific inconsistency and disclosure of the class nature of bourgeois, reformist, revisionist and hegemonist conceptions in the field of economics and politics directed against real socialism and to develop and to defend Marxist-Leninist doctrine.

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9. To point out that one of the most important ways of increasing the effectiveness of scientific research lies in further improving the planning and organization of scientific-research work and the development of proposals for improving material stimulation of the labor of scientists.

10. Scientific councils of the Economics Department of the USSR Academy of Sciences to strengthen coordination of the theoretical development of foremost national-economic problems. To develop the scientific cooperation of the institutes of the Economics Department of the USSR Academy of Sciences with economic institutions of the academies of sciences of union republics, ministries, departments and VUZ's, especially in the development and implementation of research programs on fundamental problems.

11. To consider useful visiting meetings of the Bureau of the Economics Department of the USSR Academy of Sciences, which play an important role in raising the level of comprehensive scientific research at academies of sciences of union republics, scientific centers and affiliates.

12. Journals of the Department of Economics of the USSR Academy of Sciences to direct attention to further raising the scientific-technical level and practical significance of publications, conducting of discussions on topical questions and to improve the content of published reviews of the literature on economic questions.

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INFORMATION SUPPORT OF MANAGEMENT SYSTEMS

Moscow VOPROSY EKONOMIKI in Russian No 6, 1979 pp 44-54

[Article by A. Modin]

[Text] Increase of the volume of information in the process of control of production brings about an increase of information work. The information process in a control system predetermines the main expenditures of the labor of specialists in solving tasks of the economic plan. Even simple operations with figures involve expenditures of working time. Thus, 0.45 second of time is required for the comparison of just two signs, and over 1 second for the writing of one letter or digit. In processing the statistical information of an automated sector control system (OASU), 455.14 million characters a year were prepared. "The total volume of output statistical information (according to the Scientific Research Institute of the USSR Central Statistical Administration) is statistically distributed by sectors as follows: 252.1 million characters to industry, 17.3 to capital construction, 18.0 to the most important construction sites, 34.4 to labor and wages, 57.7 to material-technical support, 6.74 to agriculture, 4.1 to new technology, 11.8 to budgets, 8.5 to trade, and 44.5 to culture, transport, and finances, etc" [1].

The growth of the scale of information work in control systems cannot under contemporary conditions be accompanied by a corresponding increase in the number of administrative personnel, and in recent years this has become the object of centralized planning. At the same time the personnel, not being able to perform the actual volume of informational work satisfactorily, is unable to prepare economic plan decisions that permit more efficient production and economic activity. As a result, reserves are formed that are not mobilized by the actual traditional control systems. Indicative of the dimensions of those reserves is the fact that considerable investments in the creation of automated control systems in all units of the national economy are repaid in 3 or 4 years. [2]. These circumstances have determined the objective need for improvement of information processes in the control of social production and the wide mechanization and automation of administrative labor.

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Three main directions have now formed in the improvement of the information support and the process of planning and control of various units of the national economy: redistribution of the volumes of information work among levels of control of social production, having in mind the transfer of a large volume of that work to inferior and primary units of the national economy; the mechanization and automation of information processes through the wide use of new technology and especially of electronic computers; the use of methods of economic information science to improve the supplying of control systems with information.

An important role in improving the supplying of information must be played by methods of economic information science in combination with use of the possibilities of contemporary electronic computer and other technology, and also means of communication.

The establishment of developed organizational structures laid the foundation for the formation and improvement of the supplying of production control systems with information. Moreover, it is accomplished under conditions of invariability of the sources of primary information mainly by ramification of the data flows and the centers of their storage. The development of information support has for a long time proceeded extensively through multiple duplication of data in the channels of its movement and its storage centers, and this has found some theoretical substantiation. For example, the construction of forms of statistical reporting was based on the following recommendations: presentation to the specialist of data permitting him to solve problems and monitor the precision of the report; inclusion in the report of information characterizing the plan and the actual dynamics of development of the object in the past; reflection in the report of estimated indicators, that is, the mean and relative values. The situation that has also formed in textbooks on statistics was correspondingly explained: "The main task of our accounting is to monitor the fulfillment of the plan and also to establish the status and development of the economy. In connection with that, many reports include three categories of information: factual data on the report period, the plan established for the report period and factual data for the preceding period. The presence of such indicators makes it possible to monitor the fulfillment of the plan and establish the dynamics of the development of phenomena" [3].

As a result of implementation of those recommendations, in a number of forms of statistical reporting only 20 percent of the new information is contained, and the remaining indicators--reference and estimated indicators and their recording on forms--are redundant expenditures of labor in a lower unit. An analogous situation is also characteristic of others, including intraplant forms of economic plan documentation.

The first attempts to mechanize informational work by means of electronic computers were unsuccessful without improvement of the routing of the forms of documentation; on the contrary, the increase of costs resulting from

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large time expenditures on data input into the computer in many cases explained the inefficiency of mechanization of information work.

The use of computers in the control of production required new methods of constructing informational support. In our country Academician V. Nemchinov was the first to formulate the basic principles of the construction of informational support of control systems:

1) minimize the quantity of primary data. In this connection he wrote "a minimum of initial data, a minimum of primary information and a maximum of derivative secondary information":

2) assure on the basis of a single flow of data the servicing of all types of economic management and the satisfaction of all units of control of the national economy. In his opinion it is advisable to combine into one all types of information services and serve them with a single automated processing system";

3) use a data processing system to comprehensively characterize economic objects and processes, that is, direction of the information system "not only toward obtaining data on processes and objects which cannot be observed directly but also toward data which cannot be obtained by direct observation or calculation";

4) expand the functions of the economic information service. V. S. Nemchinov noted that "the functions of the economic information service have been limited to just a servosystem, but have also been combined with definite functions of regulation and control";

5) provide initial data for tasks of economic mathematical modeling, that is, "the economic information service is called upon to provide the needed volume of information for modeling economic processes" [4].

The principles of informational support formulated by V. Nemchinov have obtained development in the conception of the integrated data processing system in the management of associations and enterprises. The integrated data processing system as the basis of improvement of the information support of production control systems is based on: "efficient distribution of all the technology for planning and control work to creative and mechanical operations; the development of detailed procedures for the accomplishment of mechanical operations that could not be performed by any man without occupational training; the construction of a form flow scheme with passage of documents through a "processing" filter taken into consideration; the release of equipment that prepares initial data (primary documents) from operations connected with the search for and recording of any sort of reference or estimated data on the documents (primary documents); the organization of a single, centralized standard-reference economy in the operation of the technological equipment of the data processing group [5].

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Specialists of the Scientific Research Center of the USSR Central statistical Administration have investigated problems of the use of the principle of deviations in constructing a sectoral system of operative accounting in the USSR Ministry of Chemical Industry. Implementation of that principle assured a sharp reduction of data in the planning and regulation of production. Whereas in the presence of daily reporting upon transition to a year according to the compiled nomenclature 1,947,600 indicators were reported, according to the program of the experiment their number was reduced to 497,100. But if only the data on deviations are taken, that is, the volume of the 5-day reporting is excluded from the program, the number of indicators is 117,000, or 6 percent of the number in daily reporting. The degree to which the management was informed remained practically the same. The cost of transmitting data on deviations is about 7-8 percent of the cost of transmitting daily reports" [6].

The basic indicators of the integrated data processing system as the base of information support have found wide application in the creation of automated enterprise and association systems. The flow of primary control data and the volume of labor-intensive information work in control systems have been sharply curtailed. For example, the organization of the storage of standard-reference data in computer memories released personnel of the administration from systematic operations with a card file of 300,000-500,000 cards. The printout of information on the shipment of production to the user by means of computer output devices has eliminated the need for manual preparation of invoices. Thus the development of electronic data processing made it possible to substantially improve the quality of execution of information work under the conditions of growth of production without increasing the numbers of administrative personnel.

In the beginning, when second-generation electronic computers were used in automated control systems (ASU), the memory of a control system was formed on magnetic tapes in the form of specialized files of standards and other reference information. Such organization of the standard-reference base still did not permit excluding duplication of data in different files, but it contributed to improvement of the quality of the calculations of economic plans and itself appeared as a labor-saving factor in systems for the control of production.

The introduction of third-generation electronic computers in the creation of automated enterprise control systems (ASUP) assured new possibilities for the creation of the information base of the system for the control and construction of integrated data processing systems. Random access to data in the memory of third-generation computers as a result of the wide dissemination of magnetic disk storage devices has permitted giving up the former principle of file formation. As a result of that, the concept of construction of universal programming facilities that have received the name of automated data banks has become the basis of the integrated data processing systems.

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The development of information support of sector administration has occurred mainly within the framework of the corresponding automated control systems. The creation of automated control systems for sectors of industry brought about a standardization of primary documentation and a curtailment of its nomenclature, the formation of the standard-reference base in computer storages, the merging of flows of rapid and current information, etc. The information support was improved within the framework of the general principles of integrated data processing systems with the use of programming facilities for the construction of automated data banks. At the same time, improvement of information support in the sectoral unit (in the ministries and departments) has a number of principal distinctive features. Firstly, independent associations or enterprises scattered over the territory of the country are the source of primary data (documents) for ASU for sectors of industry. This limits, on the one hand, and expands, on the other, the possibilities of using the methods of information science to improve information processes and support, since the developers of the ASU for sectors of industry do not have the right to change the forms of planning and statistical documentation with the exception of the intradepartmental. Moreover, the standardization and rationalization of intradepartmental documentation considerably reduce the labor-intensiveness of the information process.

Secondly, the inclusion of associations and enterprises in a single system of communications permits widely applying within the framework of the ASU for sectors of industry data transmission technology with minimum expenditures of manual labor. In practically all ministries and departments, perforated teletype tapes serve as the source of data for the computers of dispatcher information points. In automated dispatcher information points, information arrives directly at computers from communication channels by means of special apparatus.

Thirdly, in a sectoral unit the possibility appears of direct machine interaction in the information process of electronic computers of the main computer center of the ministry or department and the computers of the automated data processing with minimal expenditures of manual labor.

The mechanized and automated interaction of control systems in the "sector-enterprise" link contributes to the scientific organization of informational processes and support. Automated data banks have found application in the automated control system for the sector as well as for the enterprise. They are used in the automated management systems for the instrument building sector, the chemical industry and a number of other sector control systems. Automated dispatcher information points using technical methods of minimizing data flows are functioning in practically all automated sector control systems. These methods of organizing information processes and support of automated sector control systems reduce to a tenth (if not to a hundredth) the data flow in the "ministry-enterprise" link, and also files of stored information, which in the final account leads to a relative

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reduction of labor-intensiveness of information work and increase of the quality of control of production.

The principles of scientific organization of information processes and support are used in the creation and development of the automated data processing systems of the central economic planning and functional organs of the country (the automated system for planning calculations of the USSR Gosplan, the automated system for state statistics of the USSR Central Statistical Administration, the ASU-Supply and ASU-Bank, etc). Sector automated control systems or sector automated data processing systems are the sources of information for those systems. The concentration of both central economic planning and functional organ systems and their information sources within the limits of a single city opens up large possibilities of automating their informational interaction, and this in turn is a reserve for reduction of maintaining the control apparatus and increasing the speed and quality of solution of economic plan problems. Thus the automated interaction of the automated management system for the instrument building sector and the automated information-controlling system for standardization and metrology of the USSR State Committee for Standards permitted the saving of 45,000 rubles in the planning and functioning of those systems [7].

In spite of the successes achieved in the introduction of methods of economic information science in information processes and support of control systems, there still are definite shortcomings in the area of economic management. The principles of integrated data processing systems are utilized at far from all enterprises, associations and even ministries and departments. In a number of cases the absence of answers to organizational and legal questions hinders the exchange of information on machine carriers between automated systems. Such a practice not only does not save labor in the sphere of control but, as a rule, increases its expenditures in connection with transfer of data from machine carriers to ordinary forms of documentation. The lack of agreement of classifiers of material resources and the technical and economic indicators for sectors of the national economy hinders the interaction both of sector automated control systems and of labor on the preparation of data for their use outside the framework of the sector. Finally, the planning and reporting documentation is more and more saturated with reference and estimated indicators. "In the indicators of statistical reporting, planning and normative indicators represent 24 percent, indicators for past periods or estimated indicators, that is, those which can be determined from indicators of available reporting, 31 percent, and newly obtained indicators, only 45 percent" [8].

A serious shortcoming in the organization of contemporary information support is the circulation of a large volume of undocumented information in the control system. "Analysis of the support of functional control subsystems at enterprises shows that the standardization functions are 50-70 percent assured and the planning functions almost completely, the accounting and reporting by 70-80 percent (many documents on operative reporting) and functions of analysis and operative control by 20-30

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percent. The absence of documented information on the last two functions shows that that part of the information reaches management in oral form, and that considerably reduces its reliability" [9]. This, it seems to us, impoverishes the "memory" of the control system, without permitting it to completely use accumulated knowledge and experience.

The mentioned shortcomings result from both practical and theoretical difficulties in improving information processes and support of systems for the control of social production. The practical difficulties, in our opinion, are connected with two questions. Firstly, improvement of information processes and support is a very labor-intensive measure in the overall complex of work on the rationalization of control systems. As experience in the introduction of automated enterprise control systems has shown, just the investigation of the actual form flow in order to rationalize it requires 20-40 man-years of labor expenditures; reorganization of the normative-reference base takes 2-3 years, etc. Of course, the conducting of such measures is not always within the capability of the control apparatus, overloaded with current informational and analytical work. Secondly, habits and skills in the organization of administrative work do not occupy last place in the overall complex of difficulties in improving information support.

The absence of a solution of theoretical questions has a great influence on the practical directivity of work on improvement of information processes and support. These problems still have not found due acknowledgment and place in the science of control of social production. Most often discussed in the economic literature are processes of reducing or increasing the number of planning and report indicators, of the introduction of new methods of calculation, the redistribution of rights and duties of subdivisions of the organs of control, etc. However, in all these investigations, questions of the information process and support remained for a long time and in a number of cases still remain without connection with the measures under consideration to rationalize control of production. What this leads to can be illustrated with examples. This problem developed very acutely on a national economic scale during the working up of an intersector balance of production and distribution of products. The obtaining of information about expenditures on the production of separate types of product in a cross-section of pure sectors required corresponding bookkeeping operations: at enterprises it would have been necessary to have separate analyses of the production of each specific type of product. The great labor-intensiveness of such a measure brought about the development of a procedure for construction of an intersector balance of production and distribution of product on the basis of spot check data. In many cases the requirements for information support are not so obvious.

It is known that the ministries and departments are responsible for studying, determining and satisfying the needs of the national economy for corresponding types of production. What does the practical solution of this problem mean? The information and computational aspects of determining the needs of the national economy for any type of production assumes a quantitative estimate of the consumption standards for the given type of article by

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areas of its application, that is, in the production of other types of product, and the prospects of development of the areas of application of a given type of article.

In other words, determination of the need of the national economy for a given type of product on the information and computational level in a number of cases is identical to the preparation of a general forecast of the development of interconnected sectors of the economy. At the same time, the ministries and departments responsible for the solution of that problem prove to be isolated from direct sources of information; between them and the consumers there can be several intermediate links producing primary data regarding the needs for its activity, which naturally hinders the making of such calculations or substantially lowers their precision.

The further development of information support and processes of the functioning of control systems requires the solution of a number of serious theoretical and practical problems. Above all, the problem of intersector integration of information flows on a countrywide basis becomes more and more acute. The development and creation of "vertical" integrated information systems have determined the scientifically substantiated directions in the improvement of information support of plant and sector management. At the same time those systems do not eliminate intersector shortcomings arising where the activities of ministries and departments abut. In turn they cause redundancy and duplication of data flows that give rise to unjustified loading of communications channels and a need for storage devices for computers installed in the corresponding main computer centers. All this increases expenditures on the creation of automated control systems or automated data processing systems and reduces the effectiveness of electronic computer use in the national economy.

The development of independence of associations in an operative economic respect and the imposition of responsibility on them for the final results and satisfaction of the needs of the corresponding economic units make it necessary for them to obtain information about the character of use of their production directly from the user. In other words, in the long term for planning the activity of separate associations and enterprises it can prove necessary to concentrate intersector information about the consumption of separate types of production in various sectors and regions of the country.

The considered aspects of improving the information support of a system for control of social production are difficult to solve within the framework of systems for automatic control and data processing of separate ministries and departments. An intersector approach is required, and also the creation of a network of data processing equipment.

"The effectiveness of data processing integration," notes L. M. Volodarskiy, "is determined by the fact that it provides complex informational depiction and analysis of economic processes, reduces to a minimum duplication of the processes of gathering, processing and transmission of data, and also

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permits minimizing specific expenditures to obtain a unit of output data. Integration of data processing on the scale of the national economy requires the solution of a number of complex problems, but it is the only real path that will permit satisfying the growing needs for control in the area of information at allowable dimensions of expenditures" [10].

An important way to solve that problem is to create interdepartmental automated data banks. Those banks, based on use of electronic computers of the state network of computer centers, have the task of concentrating intersector information and presenting it to the users, which relieves separate associations and organizations of gathering data, transferring it to machine carriers and expending electronic computer resources on the storage of information. The automated interaction of banks with sector automated control systems, automated data processing systems and enterprise automated control systems will also contribute to a curtailment of the data flow along communications channels. For such purposes it is necessary to preliminarily investigate the advisability of creating intersector automated data banks based on very widespread information or information-connected sectors of the national economy. The conducting of such investigations can serve as a stimulus to the scientific solutions of problems of information processes and support of various sector and enterprise automated control systems and a considerable increase in the effectiveness of their functioning.

An important direction in the improvement of information support in the system of control of the national economy is rationalization of horizontal flows of data between primary production economic units. The process of the preparation and organization (the main thing) of the fulfillment of plans causes an intensive exchange of information among producers, suppliers and users. That exchange of data, in contrast with vertical flows of planning, reporting and other documents, is practically unregulated and is accomplished in the form of indirect connections between associations in the form of telephone conversations, telegraph messages and all sorts of letters. As a rule such communications have the character of refinements, reminders and all sorts of complaints in connection with the non-fulfillment of contractual obligations. "According to data of the All-Union Scientific Research Institute of Standardization, 4 billion administrative documents are compiled in the country in a year. Of them about 2 billion are letters, half of which are duplicates. For each letter 3 or 4 standard sheets of paper (a rough draft plus copies) are expended on the average. Consequently, on all letters, 6-8 billion sheets, or over 30,000 tons of paper" [11].

Rationalization and standardization of the process of informational interaction of associations and enterprises must contribute to a sharp reduction of labor-intensiveness and expenditures of other resources on data preparation. The establishment of intersector regulation of informational interaction of various organizations with consideration of the new possibilities can considerably reduce horizontal information flows.

The introduction of regulatory conditions for the accomplishment of horizontal informational connections is impossible without scientific

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methodological substantiation. It is necessary to clearly distinguish objects with respect to which various associations enter into the informational interaction, the situations determining the character of the interaction and also the degree of informational significance of the interaction of subjects. Within the framework of separate associations and enterprises some experience has already been accumulated. Thus, at a number of associations and enterprises of the country the documentation used to reflect mutual claims among various economic units has been formalized and standardized. However, those questions require careful investigation and proper methodical presentation.

Together with general problems in the improvement of informational processes and support of control systems, particular questions occupy a place of no little importance.

Emerging especially sharply is the problem of raising the level of consistency and comparability of the technical-economic and planning-report indicators, which support the planning and control of social production. In solving questions of information support in the process of ASU creation the developers often encounter an absence of due comparability of the indicators reflecting separate aspects of the production and economic activity and recorded in documents relating to various functions. This results from both deviations in the accuracy of the recording of information and the procedures of their presentation. Most of such disagreements take place between indicators expressed in value terms and in kind.

A need has developed for standardization of the nomenclature of the technical-economic and planning-report indicators and, what is the main thing, the procedure for their formation. Standardization of the nomenclature and procedures for calculation of indicators has to do not only with the system in effect. It must take into consideration the development of the control system and provide for the introduction of indicators that still are not used in the practice of planning and reporting. Preparation of separate indicators in advance will simplify later on the introduction of new methods of planning and control.

Standardization of the nomenclature and procedures for calculation of indicators requires the nationwide introduction of a single information language. In existing control systems one and the same indicator within the limits of an association is expressed by different combinations of words, the names of indicators are replaced, etc. True, in traditional control systems all this is compensated by the universal possibilities of man and his work habits. The situation is different in an automated control system or an automated data processing system, in the creation of which the developers are required to introduce formalized information languages. However, the development and introduction of information languages into operation are limited by the frameworks of the creation of automated systems of the corresponding organizations or associations. As a result there is a lack of coordination

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of the introduced information languages with one another and a preservation of existing languages where electronic computers and other equipment are not yet being used.

Moreover, an information system unified on a national scale must be used even before the introduction of electronic computers and other hardware everywhere.

At the present time within the framework of developments of automated control systems for planning calculations and sector automatic control systems a number of formalized information languages have been proposed, and so it is an important task to verify their relative effectiveness and select the basic variant. Delay in solving this question will result in the development of a number of additional "company" languages, increase their variety and draw off resources from practical tasks in improving information processes and support of systems for the control of social production.

Integration of information flows and the establishment of a single information language is the basis for improving forms of documentation, one that permits eliminating from documents of any kind reference and estimated (that is, redundant) indicators, and also is a prerequisite for a sharp curtailment of forms of documentation and of the indicators contained in them, and in the final account a reduction of the labor-intensiveness of the formation of a documented data flow. The question arises of whether it isn't possible to accomplish that measure immediately before integration of information flows. It was said above that the data flows are already being integrated within the framework of the creation of enterprise and sector automated control systems. Redundant indicators are being eliminated from the forms of intraplant and intrasector documentation. However, the main part of the redundant indicators results from their intersector character. Elimination of this redundancy does not seem possible without integration of the information flows on the scale of the national economy.

The introduction of a single information language raises the level of consistency of indicators in all areas of their subsequent application and improves the conditions of interaction of different automated control systems. This also must assure uniform formulation of the technical-economic, planning-reporting and accounting indicators in all links and sectors of the national economy and operations in obtaining and subsequently using them. In that case a unique standard (of nomenclature and values) of all indicators used in the system for control of social production ought to be introduced first. That standard will become the basis of the formulation of forms of documentation and methodical materials on the organization of information processes and support of systems for control of all links of the national economy. It is precisely the presence of such a standard that can regulate subsequent work on improving the information support of control systems.

Solution of the above-considered questions far from exhausts the problem of improving information processes and support of a social production

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control system. An important measure in that area is the development of a scientifically substantiated technology for performing information work. Especially important will be standardization of technological processes as the basis for assuring comparability and consistency of all technical-economic, planning-reporting and accounting indicators.

The technology for making technical-economic calculations--the formation of indicators and documents--must become an inseparable element of all materials on methods of solving tasks in the planning, calculating and control of production. When there is a precise technology for the performance of economic work, in the development of production control systems a new property emerges--the possibility of verifying the influence of the procedure for plan development on its precision and the adequacy of regularities in the production and economic activity of enterprises, associations and sectors of the economy. Correspondingly, elements of self-instruction and self-organization obtain a strict quantitative base in the development of control systems.

The information process in a social production control system accumulates a considerable portion of the labor resources. It is one of the most labor-intensive in the entire cycle of social reproduction. The task of increasing the effectiveness of control is also connected to a great extent with improving the quality of execution of information processes and support, with improving the use of the activity of manpower employed in that sphere.

Improvement of information support is of great importance in the planning and control of sectors of the national economy and production associations and enterprises. Therefore it is necessary to more widely use all the possibilities of scientific information science and also of means of automation of data processing and transmission. Rationalization of the information support must be accomplished in an organic combination with processes of improvement of the control of production and the creation of automated control systems.

It should be borne in mind that curtailment of the volume of information work by reduction of the number of planning and accounting indicators does not always improve the results of production and economic activity of sectors of the national economy, associations or enterprises. The fact is that the nomenclature of technical-economic indicators to a certain degree stipulates the quality of plans and operational administrative decisions. The absence of necessary indicators in the planning and reporting documentation lessens the organizing role of the plans, increases indeterminacy in the making of administrative decisions and in a number of situations brings about a need to expend resources on the retrieval or the obtaining of lacking information. This is clearly manifested in material-technical supply: in many cases a shortage of material resources in production is explained, not by the absence of materials or articles making up sets, but by an extreme aggregation of information about the state of stocks or the places where they are disposed.

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Information is becoming more and more a very important resource of planning and control. It is precisely on the level of detail, precision and timeliness of arrival of technical-economic data that the quality of planning and operational administrative decisions depends. Questions of the improvement of the planning procedure and the mechanism of cost accounting and correlation of the centralization of planning and economic independence should be solved in a complex with the organization of information support of control systems.

Thus the task arises of optimal agreement of the level of detail of the nomenclature of indicators of planning and control with the quality of the planning decisions and expenditures on data gathering and processing. Correspondingly, it is advisable to consider measures to improve the organization of control of sectors of the national economy, production associations and enterprises jointly with questions of their effective information support. In other words, expenditures on the implementation of the information support of new methods of planning and forms of cost accounting must be taken into account as a component part of expenditures on the introduction and carrying out of the proposed measures.

Unfortunately, at the present time problems of information support remain an area of investigations of "narrow" specialists in the organization of electronic data processing or clerical work. There are practically no examples of complex solution of problems in improving planning and control together with questions of corresponding information support. Measures on the introduction of new methods of planning or forms of cost accounting are carried out first, and an additional flow of necessary data, which complicates the already existing information support system, is organized later.

At the same time the problems of information support have gone far beyond the framework of narrow technical questions and are being linked more and more closely with the general complex of measures to improve systems for control of sectors of the national economy and production associations and enterprises. Large planning and research collectives are working in that area, and on the results of their activity depend not only the current but also the long-range effectiveness of the organization of control. In addition, automation of information support presents new and broader possibilities of rational planning and control as well. Serious attention has been turned repeatedly toward the importance of development of that direction of science.

In view of the organizational connection of information processes and support with the corresponding subdivisions of social production, at the present time it is hardly possible to separate the information industry into an independent sector in its traditional sense.

However, the problem of the development of a network of time-sharing computer centers, which also form the material basis of a new sector of industry--data processing, is on the agenda. The development of the new

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sector makes it necessary to develop on a priority basis the economic principles of its construction and functioning. The main parameters of automated control systems and methods of forecasting and planning have now been theoretically substantiated and worked out by the scientific institutions of the country, the methodology of their construction has been formulated and a procedure for determining economic effectiveness has been adopted. In addition, the introduction of computer technology and the methods of mathematical economics into the control of social production, the creation of automated control systems and, what is the main thing, tasks in the further improvement of information processes and support are establishing a need for the development and formation, within the framework of the general theory of scientific control, of questions of the economics of the information industry as an independent scientific discipline.

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